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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/656,203 | 09/08/2003 | Bernd Eck | 242174US0CONT | 7505 |
| 22850 | 7590 | 07/06/2004 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | PUTTLITZ, KARL J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1621 | |

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,203

Applicant(s)

ECK ET AL.

Examiner

Karl J. Puttlitz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/8/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites "to obtain crystals and a mother liquor, wherein the crystals are washed with a wash liquid comprising acrylic acid" However, the claims is indefinite since it does not recite exactly what is obtained from washing the crystals.

Claim 20 recite a step (c) of crystallizing acrylic acid and a step (d) of purifying acrylic acid from the crystals. However, it is unclear what the crystals comprise, besides acrylic acid.

Prior Art rejections

The claims cover, inter alia, a process for the purification of acrylic acid by crystallization to obtain crystals and a mother liquor, wherein the crystals are washed with a wash liquid comprising acrylic acid and having a temperature of from 15 to 209 C.

The claims also cover a process for the preparation of acrylic acid by (a) preparation of a gaseous product mixture which essentially has the composition of a reaction mixture of the catalytic gas-phase oxidation of C3- alkanes, C3-alkenes, C3-alkanols and/or C3-alkanals and/or precursors thereof to acrylic acid, (b) condensation of the gaseous product mixture, (c) crystallization of the acrylic acid from the solution

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obtained in stage (b) and (d) purification of the acrylic acid from the crystals of the preceding stage by washing the crystals with a wash liquid comprising acrylic acid and having a temperature of from 15 to 20 C.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-29 rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/05188 as evidenced by counterpart U.S. Patent No. 6,433,222 to Eck et al. (Eck 222).

Eck 222 teaches a process for the preparation of acrylic acid by: (a) preparation of a gaseous product mixture which essentially has the composition of a reaction mixture of catalytic gas-phase oxidation of C.sub.3 -alkanes, C.sub.3 -alkenes, C.sub.3 -alkanols and/or C.sub.3 -alkanals and/or precursors thereof to acrylic acid, which comprises

(b) condensation of the gaseous product mixture,

(c) crystallization of the acrylic acid from the solution obtained in stage (b), with partial evaporation of the solution under reduced pressure,

(d) isolation of the resulting crystals from the mother liquor,

(e) recycling of at least a part of the mother liquor from stage (d) to stage (b) and

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(f) recycling of at least a part of the evaporated solution from stage (c) to stage

(b). See column 3, lines 1-16.

In step (d), during the washing, the amount of wash liquid is suitably from 0 to 500, preferably from 30 to 200, g of wash liquid/100 g of crystals. The wash liquid used is not subject to any restriction. However, washing is advantageously carried out using pure product, i.e. using a liquid which contains acrylic acid whose purity is higher than that of the crystal cake to be washed, but at least purer than the mother liquor in the crystallization. See column 7, lines 50-58.

The difference between the process covered in the rejected claims and the process disclosed by Eck 222 is that while the claimed process recites particular temperatures, i.e., 15-20 C, Eck 222 fails to explicitly teach the temperature of the washing step.

However, given that Eck 222 is silent as to a temperature of the washing step, one of ordinary skill would expect that the washing step is carried out at room temperature, which approximates the temperature range covered in the rejected claims. Therefore, the temperature range claimed in the rejected claims is a necessary aspect of the process disclosed by Eck 222, and is therefore within the motivation of those of ordinary skill. Therefore, Eck 222 renders the rejected claims obvious since the references teaches the elements of the rejected claims with a reasonable expectation of success.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claims 11-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/01415 as evidenced by counterpart U.S. patent No. 6,596,901 to Eck et al. (Eck 901).

Eck 901 teaches a process for preparing acrylic acid or meth-acrylic acid, which comprises (a) preparing a gaseous product mixture having essentially the composition of a reaction mixture of the catalytic gas phase oxidation of C.sub.3 -/C.sub.4 -alkanes, -alkenes, -alkanols and/or -alkanals and/or precursors thereof to form acrylic acid or methacrylic acid, (b) condensing said gaseous product mixture, (c) crystallizing acrylic acid or methacrylic acid from the solution obtained in step (b), and (d) removing the resulting crystals from the mother liquor. See description bridging columns 2 and 3.

In step (d), the quantity of wash liquor is suitably within the range from 0 to 500 g of wash liquor/100 g of crystallizate, preferably within the range from 30 to 200 g of wash liquor/100 g of crystallizate. The wash liquor used is not subject to any restriction. It is advantageous, however, to wash with pure product, ie. with an acrylic or methacrylic acid liquid whose purity is greater than that of the crystal cake to be washed. See column 6, lines 57-65.

The difference between the process covered in the rejected claims and the process disclosed by Eck 901 is that while the claimed process recites particular

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temperatures, i.e., 15-20 C, Eck 901 fails to explicitly teach the temperature of the washing step.

However, given that Eck 901 is silent as to a temperature of the washing step, one of ordinary skill would expect that the washing step is carried out at room temperature, which approximates the temperature range covered in the rejected claims. Therefore, the temperature range claimed in the rejected claims is a necessary aspect of the process disclosed by Eck 901, and is therefore within the motivation of those of ordinary skill. Therefore, Eck 901 renders the rejected claims obvious since the references teaches the elements of the rejected claims with a reasonable expectation of success.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 11-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No.

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6,700,016 (US 016) Although the conflicting claims are not identical, they are not patentably distinct from each other.

The claims of the instant application are drawn to a process for the purification of acrylic acid by crystallization to obtain crystals and a mother liquor, wherein the crystals are washed with a wash liquid comprising acrylic acid and having a temperature of from 15 to 209 C.

The claims also cover a process for the preparation of acrylic acid by (a) preparation of a gaseous product mixture which essentially has the composition of a reaction mixture of the catalytic gas-phase oxidation of C3- alkanes, C3-alkenes, C3-alkanols and/or C3-alkanals and/or precursors thereof to acrylic acid, (b) condensation of the gaseous product mixture, (c) crystallization of the acrylic acid from the solution obtained in stage (b) and (d) purification of the acrylic acid from the crystals of the preceding stage by washing the crystals with a wash liquid comprising acrylic acid and having a temperature of from 15 to 20 C.

The claims of US 016 are drawn to a process for the purification of acrylic acid by crystallization to obtain crystals and a mother liquor, wherein the crystals are washed with a wash liquid comprising acrylic acid and having a temperature of from 20 to 35 C. See claim 1.

The claims of US 016 also cover a process for the preparation of acrylic acid by (a) preparation of a gaseous product mixture which essentially has the composition of a reaction mixture of the catalytic gas-phase oxidation of C3- or C4-alkanes, C3- or C4-alkenes, C3- or C4-alkanols and/or C3- or C4-alkanals and/or precursors thereof to

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acrylic acid, (b) condensation of the gaseous product mixture, (c) crystallization of the acrylic acid from the solution obtained in stage (b) and (d) purification of the acrylic acid from the crystals of the preceding stage by washing the crystals with a wash liquid comprising acrylic acid and having a temperature of from 20 to 35 C.

Based on the foregoing, the claims of US 016 anticipate the claims of the instant application.

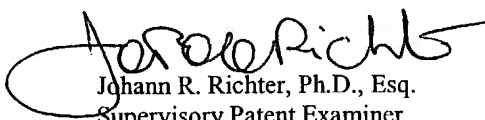
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday-Friday (alternate).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571) 272-0646.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

Karl J. Puttlitz
Assistant Examiner


Johann R. Richter, Ph.D., Esq.
Supervisory Patent Examiner
Biotechnology and Organic Chemistry
Art Unit 1621
(571) 272-0646